

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the matter of	)	
	)	
Interference Immunity Performance	)	ET Docket No. 03-65
Specifications for Radio Receivers	)	
	)	
Review of the Commission's Rules and	)	MM Docket No. 00-39
Policies Affecting the Conversion to Digital	)	
Television	)	
To:     The Commission		

**COMMENTS OF SINCLAIR BROADCAST GROUP INC.**

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## **Summary**

There is a glaring misconception by many in government that DTV signals are available to over-the-air viewers today on the same ease-of-reception basis as present day analog television. This is simply not true. Despite over a half decade of engineering efforts by receiver and chip manufacturers, the original problems of multipath distortion of the DTV signal and its effect on reception using simple antennas, discovered during the first days of DTV broadcasting, continue to be largely unresolved.

Sinclair urges the Commission to expeditiously adopt minimum performance standards for over-the-air DTV receivers. Despite years of promises from electronics manufacturers, each new generation of over-the-air DTV receiver that enters the marketplace fails to provide reliable reception of over-the-air DTV signals using simple antennas. Given the focus of electronics manufacturers on the cable and satellite industries, it has become clear that manufacturers are not devoting the necessary resources to resolving over-the-air DTV reception problems.

Applying performance standards to over-the-air DTV receivers will facilitate three crucial public policy goals: (i) preserving a free, ubiquitous, and wireless television service; (ii) expediting the DTV transition; and (iii) facilitating sharing of broadcast television spectrum. First, performance standards will preserve a free, ubiquitous, and wireless television service and the vital public safety services it provides. Without standards for over-the-air DTV receivers, the Commission risks the disenfranchisement of the millions of over-the-air television viewers who cannot afford, cannot obtain, or simply choose not to subscribe to cable or satellite television. Second, performance standards will significantly expedite the DTV transition. Lack of reliable over-the-air DTV reception and the continued reliance on the support of the cable and satellite industries are two of the fundamental reasons why the DTV transition has been stalled for years. Without simple, easy over-the-air DTV reception, the vast majority of the public is denied digital

television considering that most cable systems are not carrying over-the-air digital signals or are charging extra for these signals. Once effective performance standards are adopted and implemented for over-the-air receivers, the DTV transition will gain unstoppable momentum as consumers readily replace their legacy analog receivers with DTV receivers that are capable of providing vastly improved picture quality with the same ease of reception as analog receivers. Third, performance standards will promote the Commission's goal of permitting low power unlicensed devices and other services to share broadcast television spectrum. The Commission may be able to authorize such spectrum sharing only if over-the-air DTV receivers meet certain requirements for selectivity, sensitivity, and dynamic range to be able to reject the signals emitted by these unlicensed devices. If, however, untold numbers of receivers are permitted to enter the marketplace that do not meet certain minimum standards required to facilitate sharing, the Commission will face an interference nightmare as consumers realize their over-the-air receivers cannot operate in this new shared spectrum environment.

Sinclair proposes four specific performance standards for over-the-air DTV receivers to ensure that they are capable of providing the same ease of reception as current analog receivers: selectivity, sensitivity, dynamic range, and multipath tolerance. The Commission has already assumed values for three of these parameters (*i.e.*, selectivity, sensitivity, and dynamic range) in adopting the DTV Table of Allotments, but has never mandated that over-the-air receivers actually satisfy these assumptions. Moreover, in developing the DTV Table of Allotments, the Commission never accounted for multipath impairment effects. Only by requiring over-the-air DTV receivers to include an adequately performing adaptive equalizer or equivalent circuitry will receivers be able to decode signals in the presence of real-world multipath propagation.

While the Commission prefers voluntary over mandatory standards for over-the-air DTV receivers, Sinclair believes mandatory standards are needed. Given that broadcasters do not control the production of receivers and those entities who do produce receivers have demonstrated little interest in devoting resources to improving over-the-air DTV reception, the Commission should adopt Sinclair's four proposed performance standards as "mandatory" standards.

Although they are not likely to be as effective as mandatory standards, voluntary standards promulgated by the Commission may be an acceptable alternative if they are accompanied by a meaningful labeling regime. At a minimum, the Commission should adopt the four performance standards discussed above in any voluntary regime. If a receiver complies with these standards, it would be labeled to indicate that it meets the Commission's performance criteria. If a receiver does not comply with these standards, it should be clearly labeled to indicate that over-the-air reception may not be possible using a simple antenna and information should be provided as to the cost and type of outdoor antenna that must be purchased and installed to have any potential of receiving over-the-air DTV signals.

Finally, Sinclair believes that performance standards will lead to lower cost over-the-air DTV receivers. Demand for over-the-air DTV receivers will surge provided DTV receivers can operate using simple antennas just like current analog receivers. As production of over-the-air receivers increases to meet this demand, the per unit cost will decrease rapidly as economies of scale and production efficiencies are achieved.

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To: The Commission

**COMMENTS OF SINCLAIR BROADCAST GROUP INC.**

Sinclair Broadcast Group Inc. ("Sinclair") hereby files these Comments in response to the above-captioned *Notice of Inquiry* ("NOI") in which the Commission is considering whether to adopt minimum performance standards for over-the-air DTV receivers.<sup>1</sup> Sinclair urges the Commission to expeditiously adopt minimum performance standards for over-the-air DTV receivers in order to preserve a free and ubiquitous over-the-air television service and to expedite the DTV transition.

**Background**

*Sinclair.* Sinclair is one of the largest over-the-air television broadcasters in America today. Sinclair currently owns and operates, programs, or provides sales services to 62 television stations in 39 markets. Sinclair's television stations reach approximately 24% of U.S. television households and include affiliates of the ABC, CBS, Fox, WB, and UPN networks. Sinclair has invested heavily in the DTV transition, spending millions of dollars to ensure that its stations meet Commission-mandated deadlines for building out DTV facilities.

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<sup>1</sup>See *Interference Immunity Performance Specifications for Radio Receivers, Notice of Inquiry*, ET Docket No. 03-65 ("NOI") (March 24, 2003). The NOI was published in the *Federal Register* on May 5, 2003. 68 FR 23677 (May 5, 2003). Thus, these Comments are timely filed on July 21, 2003, seventy-five days after publication of the NOI in the *Federal Register*.

*Receiver Standards NOI.* In the above-captioned proceeding, the Commission is considering incorporating receiver performance specifications into its spectrum policy on a broader basis. Historically, the Commission has adopted technical standards for transmitters but has neglected to adopt similar standards for receivers. *NOI* at ¶¶ 2, 5.<sup>2</sup> The Commission states that it is “necessary to shift our current paradigm for assessing interference from approaches based primarily on transmitter operations towards new approaches that focus on the actual RF environment and interaction between transmitters and receivers.” *Id.* at ¶ 9.

Based on previous requests submitted by Sinclair<sup>3</sup> as well as other representatives of broadcasters,<sup>4</sup> the Commission asks whether it should adopt performance standards for over-the-air DTV receivers. *NOI* at ¶¶ 34-36. The Commission seeks input on what minimum interference immunity parameter values should be specified for over-the-air DTV receivers and how these values compare to the performance of existing receivers. *Id.* at ¶ 34.

The Commission notes its preference for voluntary over mandatory performance standards. *NOI* at ¶¶ 18, 20, 32. With that in mind, the Commission proposes a voluntary standards regime for over-the-air DTV receivers whereby broadcasters, electronics manufacturers, consumers, and others would identify performance parameters and develop minimum performance specifications for these parameters. *Id.* at ¶ 36. These voluntary

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<sup>2</sup>The Commission’s *NOI* echoes the views of the Spectrum Policy Task Force (“SPTF”), which recently concluded that “receiver robustness generally has not been taken into account in Commission regulations” and that the Commission’s “transmitter-centric policy is not necessarily efficient in today’s spectrum environment.” *Spectrum Policy Task Report*, ET Docket No. 02-135 (November 2002) (“*SPTF Report*”), at 31.

<sup>3</sup>See *Sinclair Broadcast Group Inc., Petition for Partial Reconsideration*, MM Docket No. 00-39 (filed November 8, 2002); see also Comments of Hammet and Edison, Inc., MM Docket 00-39 (Jan. 16, 2003).

<sup>4</sup>See *National Association of Broadcasters and Association for Maximum Service Television, Petition for Reconsideration*, MM Docket No. 00-39 (filed March 15, 2001).



performance specifications would be published and over-the-air DTV receivers that meet these specifications could be labeled to indicate their compliance with these “industry accepted” standards. *Id.*

The Commission also asks what impact receiver standards will have on the cost of over-the-air DTV receivers. *NOI* at ¶ 37. The Commission states that the cost of producing receivers that comply with performance standards may be higher than the cost of receivers that do not comply with such standards, resulting in higher prices for compliant products. *Id.* The Commission also notes that mandatory standards “could be expected to result in better, presumably more desirable, products that again might cost more to produce.” *Id.*

### **Discussion**

#### **I. THE COMMISSION MUST ADOPT PERFORMANCE STANDARDS FOR OVER-THE-AIR DTV RECEIVERS TO REPLICATE THE CURRENT EASE OF RECEPTION OF ANALOG TELEVISION**

##### **A. Current Over-the-Air DTV Receivers Are Not Capable of Providing Reliable Reception Using Simple Antennas**

In the *NOI*, the Commission states its belief that “allowing manufacturers to determine the performance capabilities of broadcast receivers . . . historically has yielded product models that provide satisfactory service for consumers at attractive price levels.” *NOI* at ¶ 31.

This belief has proven false for DTV. Despite years of promises from electronics manufacturers, each new generation of over-the-air DTV receiver that enters the marketplace fails to provide useable reception of over-the-air DTV signals employing simple antennas in most locations. Understandably, consumers have been reluctant to purchase these receivers unless they can enjoy the same ease of reception with DTV that they currently enjoy with analog television. The consumer is, in most cases, not willing or able to purchase and erect a large outdoor antenna structure with rotators to steer the arrays toward the DTV transmitter site. As each new

generation of over-the-air DTV receiver fails to meet expectations, the American public becomes further disillusioned with DTV.

The marketplace has simply failed to produce receivers that are capable of providing robust and reliable over-the-air DTV reception using simple antennas. Given the focus of electronics manufacturers on the cable and satellite industries, it has become clear that manufacturers have not and are not devoting the necessary resources to resolving over-the-air DTV reception problems. Indeed, electronics manufacturers have even objected to the Commission's requirement that all new television receivers contain a tuner -- without any performance standards -- for receiving over-the-air DTV signals.<sup>5</sup> It is the stated view of consumer electronics manufacturers that over-the-air DTV reception is no longer important because most consumers rely on cable and satellite.<sup>6</sup> Equipment manufacturers also deem the over-the-air market as undesirable because those Americans who rely exclusively on over-the-air

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<sup>5</sup>See *Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television, Second Report and Order and Second Memorandum Opinion and Order*, MM Docket No. 00-39 (August 9, 2002) ("*DTV Tuner Order*"). The unwillingness of equipment manufacturers to do anything that would facilitate the ease of reception of over-the-air DTV is further demonstrated by their decision to file an appeal of the *DTV Tuner Order* with the U.S. Court of Appeals for the D.C. Circuit and to pursue legislation to overturn the DTV tuner mandate. See *Consumer Electronics Association v. FCC*, Case No. 02-1312 (D.C. Cir., filed October 11, 2002); "TV Consumer Choice Act of 2003," H.R. 426, 108<sup>th</sup> Congress (introduced January 28, 2003).

<sup>6</sup>See Daisy Whitney, *FCC Orders Digital Tuners in TVs by '07*, Electronic Media (Aug. 12, 2002) at 1A (quoting CEA spokesperson Jenny Miller as stating that "Most consumers don't need [a DTV tuner] because they get signals through cable"); Greg Gatlin, *Feds Mandate Digital TV Tuner*, The Boston Herald (Aug. 9, 2002) at 27 (quoting CEA President Gary Shapiro as stating "With fewer than 13 percent of American households relying on over-the-air reception of their TV signal, we don't need a digital broadcast tuner embedded in every new television in order to accelerate the DTV transition"); *FCC Orders Set Manufacturers to Include DTV Tuner*, Communications Daily (Aug. 9, 2002) (CEA President Gary Shapiro "said the decision was wrong because 90% of Americans didn't need tuners because they received their broadcast signals through cable or satellite"); Eric A. Taub, *The Big Picture on Digital TV: It's Still Fuzzy*, The New York Times (Sept. 12, 2002) at sec. G, p. 1 (quoting CEA President Gary Shapiro as stating that "When the digital television transition started, we thought it would be driven by broadcasters. What were we thinking? Cable and satellite is where the action is.").

television are likely to be less wealthy than those consumers who subscribe to cable and satellite.<sup>7</sup> Moreover, equipment manufacturers seem to be devoting more resources to promoting digital cable and satellite reception perhaps because they have come to the realization that they do not yet have a viable solution for over-the-air reception difficulties. Mandatory receiver standards would provide the necessary incentive to redouble the efforts to resolve reception problems.

As Sinclair has argued previously, the Commission's decision to require new DTV receivers to include over-the-air tuners was a necessary and critical first step in facilitating the DTV transition, but it can by no means be considered the final step.<sup>8</sup> A requirement that new receivers contain an over-the-air DTV tuner absent performance standards to ensure some degree of reliable reception is essentially meaningless and will do little to expedite the DTV transition or bring the benefits of DTV to consumers. Only with performance standards promulgated by the Commission will equipment manufacturers finally devote the necessary resources to developing receivers that are capable of robust and reliable reception of over-the-air DTV signals using simple antennas.

In response to mounting evidence that they have failed to produce reliable over-the-air DTV receivers, equipment manufacturers reflexively blame the purported "low" power levels at which some broadcasters are operating DTV transmitters as the only cause for poor DTV

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<sup>7</sup>See U.S. Census Bureau, Statistical Abstract of the United States (2002), at p. 699 (Table 1104) (providing survey data concluding that 81.6 percent of consumer households with incomes of \$50,000 and over viewed cable television, while only 53.8 percent of consumer households with incomes less than \$10,000 viewed cable television); *Policies and Rules Concerning Children's Television Programming, Report and Order*, 11 FCC Rcd 10660 (1996) (citing Bureau of Labor statistics demonstrating that while about 75 percent of consumer households with incomes of \$70,000 and over subscribe to cable television, only about 36 percent of consumer households with incomes less than \$5,000 subscribe to cable).

<sup>8</sup>See *Sinclair Broadcast Group Inc., Petition for Partial Reconsideration*, MM Docket No. 00-39 (filed November 8, 2002).

reception.<sup>9</sup> The Commission should not be misled by these bogus claims. Even in areas where broadcasters are operating at fully authorized power, current over-the-air DTV receivers still fail to provide reliable reception. Moreover, blaming relatively low power DTV signals for poor reception ignores the basic engineering flaw in current over-the-air DTV receivers -- the inability to decode digital signals in multipath-impaired signal environments using simple antennas regardless of signal strength.<sup>10</sup> Increasing DTV signal strength will not overcome this fundamental reception limitation. Rather, the ability to receive multipath-distorted DTV signals is entirely dependent on the capabilities of receivers to decode these signals.

**B. Performance Standards For Over-the-Air DTV Receivers Will Facilitate Important Commission Policy Goals**

Applying performance standards to over-the-air DTV receivers will facilitate three crucial public policy goals: (i) preserving a free, ubiquitous, and wireless television service; (ii) expediting the DTV transition; and (iii) facilitating sharing of broadcast television spectrum.

**1. Performance Standards for Over-the-Air DTV Receivers Will Preserve a Free, Ubiquitous, and Wireless Television Service**

It is beyond debate that over-the-air television is of crucial importance in the United States today.<sup>11</sup> Millions of Americans rely solely on free over-the-air television for access to

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<sup>9</sup>See, e.g., Reply Comments of Consumer Electronics Association ("CEA"), MM Docket No. 03-15, RM-9832 (May 21, 2003); Letter from Lawrence Sidman, Counsel for Thomson Inc., to Ms. Marlene H. Dortch, FCC, CS Docket No. 97-80 et al. (June 23, 2003) (attaching letter from David H. Arland, Thomson, to W. Kenneth Ferree, FCC (June 20, 2003) at 5); Letter from Lawrence Sidman, Counsel for Philips Electronics North America Corporation ("Philips"), to Ms. Marlene H. Dortch, FCC, CS Docket No. 97-80 et al. (June 23, 2003) (attaching letter from Thomas M. Hafner, Philips, to W. Kenneth Ferree, FCC (June 20, 2003) at 3-4).

<sup>10</sup>See Letter from Kathryn R. Schmeltzer, Counsel for Sinclair, to Ms. Marlene H. Dortch, FCC, MB Docket No. 03-15 (June 17, 2003).

<sup>11</sup>See, e.g., *Reallocation and Service Rules for the 698-746 MHz Spectrum Band, Report and Order*, 17 FCC Rcd 1022 (January 18, 2002), Separate Statement of Commissioner Copps ("Continued access to free over-the-air television is also a central concern of this Commission. Broadcasters serve a special and critical role in our communities and in the nation's marketplace

local news, weather, and other information.<sup>12</sup> Absent performance standards for over-the-air DTV receivers, the Commission risks the disenfranchisement of these millions of viewers who cannot afford, cannot obtain, or simply choose not to subscribe to cable or satellite television. Over-the-air television also provides critical public safety services. In many areas of the United States, such as Bedford County in southwestern Virginia, cable service does not extend outside of town centers and satellite reception is impossible in many areas due to blockage from foliage and terrain. For residents of such areas, over-the-air television is their only choice for television programming and access to critical information.

The ease of reception of over-the-air television is particularly crucial in times of emergency. Indeed, Tom Ridge, Secretary of the Department of Homeland Security (“DHS”), has stated that television is the “first choice” for communicating critical information in times of emergency.<sup>13</sup> The DHS further advises Americans to keep a battery operated radio in their

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of ideas. We must always work to maintain the viability of free over-the-air television, and protect this service for the millions of Americans who receive their news, entertainment, and so many other services solely from over-the-air broadcasting. Free over-the-air television will be just as critical in the digital era as it is right now in these early days.”); *Service Rules for the 746-764 and 776-794 MHz Bands, Order on Reconsideration*, 16 FCC Rcd 21633 (September 17, 2001), Separate Statement of Commissioner Martin (“we must not lose sight of the value of free, over-the-air television services. The availability of such services and outlets helps ensure that all Americans enjoy a variety of programming and views”).

<sup>12</sup>As Chairman Powell explained in his Separate Statement on the *DTV Tuner Mandate Order*:

“There are approximately 81 million television sets in the U.S. (over 30% of the total) that are not connected to any subscription video service and rely solely on free, over-the-air broadcasting. Of those sets that rely on over-the-air service, about 46.5 million are in broadcast-only homes and 34.5 million are in homes that subscribe to a multichannel video programming service. Thus, over-the-air tuners affect tens of millions of consumers.”

<sup>13</sup>See Comments of Association for Maximum Service Television, National Association of Broadcasters, Association of Public Television Stations, Docket No. 02-380 (April 17, 2003), at 18.

emergency preparedness kits.<sup>14</sup> Given that “a picture speaks a thousand words,” a battery operated television using a small, simple antenna would be even more useful in times of disaster. Moreover, the ability to receive over-the-air television signals is important even for those consumers who rely primarily on cable and satellite.<sup>15</sup> When fragile cable systems suffer outages for either technical or disaster-related reasons or when weather disrupts satellite transmissions, consumers expect to still receive over-the-air television reception using small, simple antennas. In times of natural or man-made disasters, the fragile cable and satellite infrastructures are often the first to fail. When electricity shut offs, there are no battery operated cable or satellite receivers that consumers can rely on for critical information. Rather, battery operated over-the-air television receivers are the only option for critical visual information in times of disaster. Given the many vital public interest benefits of over-the-air television, the Commission cannot afford to ignore the performance of over-the-air DTV receivers.

## **2. Performance Standards for Over-the-Air DTV Receivers Will Significantly Expedite the DTV Transition**

Lack of reliable over-the-air DTV reception is one of the fundamental reasons why the DTV transition has been stalled for years.<sup>16</sup> Consumers are unwilling to purchase over-the-air DTV receivers unless they can enjoy the same ease of reception using simple antennas that they experience with analog sets. Only with Commission-endorsed performance standards will consumers be assured that the new DTV receivers they purchase are actually capable of

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<sup>14</sup>See “Supply Checklists” (available at [http://www.ready.gov/supply\\_checklists.html](http://www.ready.gov/supply_checklists.html)).

<sup>15</sup>See, e.g., *DTV Tuner Order*, Separate Statement of Commissioner Abernathy (“Even households subscribing to a MVPD frequently rely on over-the-air transmissions on one or more of their receivers.”).

<sup>16</sup>*Review of the Commission’s Rules and Policies Affecting the Conversion To Digital Television, Second Report and Order*, 17 FCC Rcd 15978 (August 9, 2002) (“the lack of DTV receiver capability is delaying the transition and may seriously impede the transition in the future”).

providing over-the-air reception without the need for expensive, complex, and professionally installed outdoor antennas. Once these standards are adopted and implemented, the DTV transition will gain unstoppable momentum as consumers readily replace their legacy analog receivers with DTV receivers that are capable of providing vastly improved picture quality and new features with the same ease of reception as analog receivers.

**3. Performance Standards for Over-the-Air DTV Receivers Will Facilitate the Commission's Goal of Sharing Broadcast Television Spectrum**

In December 2002, the Commission issued a *Notice of Inquiry* exploring whether and how to authorize unlicensed transmitters to operate in television broadcast spectrum.<sup>17</sup> Adopting performance standards for over-the-air DTV receivers will facilitate the Commission's goal of permitting unlicensed devices and other services to share broadcast television spectrum. The Commission may be able to authorize such spectrum sharing, but only if over-the-air DTV receivers meet certain requirements for selectivity, sensitivity, and dynamic range to be able to reject the signals emitted by these unlicensed devices. If untold numbers of receivers are permitted to enter the marketplace that do not meet certain minimum standards required to facilitate sharing, however, the Commission will face an interference nightmare as consumers realize their over-the-air receivers cannot operate in this new shared spectrum environment.

**II. FOR OVER-THE-AIR DTV RECEIVERS, THE COMMISSION SHOULD ADOPT STANDARDS FOR SELECTIVITY, SENSITIVITY, DYNAMIC RANGE, AND MULTIPATH TOLERANCE**

In the *NOI*, the Commission seeks input on what types of minimum performance standards it should adopt for over-the-air DTV receivers. *NOI* at ¶ 34. Sinclair proposes four performance standards, three of which (*i.e.*, selectivity, sensitivity, and dynamic range) the

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<sup>17</sup>See *Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, Notice of Inquiry*, ET Docket No. 02-380 (December 20, 2002).

Commission has already assumed values for in adopting the DTV Table of Allotments.<sup>18</sup> As the Commission recognizes in the *NOI*, while the DTV Table of Allotments contains technical parameters governing DTV transmitters, it also “assume[s] certain levels of receiver performance.” *NOI* at ¶ 5. Indeed, the Commission determined that adjacent and co-channel assignments for nearby markets as well as the use of “taboo” channels were possible, but only if over-the-air DTV receivers met certain performance specifications for selectivity, sensitivity, and dynamic range. The Commission, however, has never mandated that over-the-air DTV receivers meet the assumptions regarding receiver performance underlying the DTV Table of Allotments. Without such mandated requirements for receivers, the DTV Table of Allotments is at risk of becoming a falsely constructed table of frequency usage that is useless to American television viewers. As discussed below, the Commission should adopt minimum performance standards for over-the-air DTV receivers that match the assumptions underlying the DTV Table of Allotments. Sinclair also urges the Commission to adopt a fourth performance standard regarding multipath tolerance, which the Commission did not account for in adopting the DTV Table of Allotments.

**A. The Commission Should Ensure that Over-the-Air DTV Receivers Meet a Minimum Selectivity Level**

As the Commission explains in the *NOI*, “receiver selectivity is the ability to isolate and acquire the desired signal from all of the undesired signals that may be present on other channels. Selectivity is a central factor in the control of adjacent channel interference.” *NOI* at ¶ 12. This capability is especially vital for over-the-air DTV receivers given that the DTV Table of Allotments is characterized by never-before-authorized adjacent channel allocations. If over-the-

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<sup>18</sup>See *Advanced Television Systems, Sixth Report and Order*, 12 FCC Rcd 14588, Appendix A (April 21, 1997).



air DTV receivers are incapable of adequately separating two adjacent channels, viewers will not be able to receive their desired DTV station. It should be noted that the conditions for receiving over-the-air DTV signals are far different than the carefully controlled conditions characterizing cable and satellite systems. Unlike with over-the-air DTV, individual channel levels for cable and satellite systems are carefully controlled and consistent.

**B. The Commission Should Ensure that Over-the-Air DTV Receivers Meet a Minimum Sensitivity Level**

The Commission explains that receiver “sensitivity is the measure of a receiver’s ability to receive signals of low strength.” *NOI* at ¶ 12. More sensitivity means a receiver can pick up lower level signals or signals that are more distant. Receiver sensitivity is usually expressed as a “noise figure,” which is essentially a measure of the level of self-generated noise in the DTV receiver. In constructing the DTV Table of Allotments, the Commission used a computer program that assumed a 10 dB noise figure for the VHF band and 7 dB noise figure for the UHF band for DTV receivers. Based on that assumption, the Commission calculated the power level and coverage of DTV stations. If DTV receivers enter the marketplace that are less sensitive than assumed by the Commission, many DTV stations will not cover their DMA or will not be receivable using simple antennas even when operating at maximum authorized power.

**C. The Commission Should Ensure that Over-the-Air DTV Receivers Meet a Minimum Level of Dynamic Range**

In the *NOI*, the Commission explains that dynamic range “is the range of the highest and lowest received signal strength levels over which the receiver can satisfactorily operate. The upper side of a receiver’s dynamic range determines how strong a received signal can be before failure due to overloading occurs.” *NOI* at ¶ 12. In developing the DTV Table of Allotments, the Commission assigned adjacent channels in the same market based not only on the assumption that DTV receivers would exhibit excellent selectivity, but also on the assumption that receivers

would be able to avoid being overloaded by a strong but unwanted near adjacent channel. If a DTV receiver's dynamic range is inadequate, then viewers may not be able to receive many stations that operate in strong signal markets. Moreover, dynamic range is a measure of how well a receiver performs when receiving a weak signal in the presence of a strong signal not immediately adjacent in frequency. This condition will occur for viewers who live between two markets and are trying to receive the more distant station. Again, if the dynamic range of DTV receivers is inadequate, viewers may not be able to receive their desired DTV station.

**D. The Commission Should Ensure that Over-the-Air DTV Receivers Can Decode Digital Signals in Multipath-Impaired Environments Using Simple Antennas**

In making its assumptions regarding DTV receiver performance in developing the DTV Table of Allotments, the Commission never accounted for multipath impairment effects. Rather, the Commission instead mistakenly assumed a non-real-world digital additive white Gaussian noise-type environment. In order to receive an over-the-air DTV signal in the real world, however, a receiver must be able to decode the signal in the presence of multipath propagation. This is accomplished by including an adaptive equalizer or equivalent circuitry in the DTV receiver. Without a requirement for an adaptive equalizer or equivalent circuitry, DTV sets will enter the marketplace with an impaired ability to decode digital signals in multipath-distorted signal environments.

**III. PERFORMANCE STANDARDS FOR OVER-THE-AIR DTV RECEIVERS SHOULD BE MANDATORY**

While the Commission states its preference for voluntary over mandatory standards for over-the-air DTV receivers, Sinclair believes mandatory standards are needed. As the Spectrum Policy Task Force recently concluded, receiver performance standards are most appropriate "when the marketplace does not adequately promote receiver performance (*e.g.*, when the

service provider does not control the manufacturing of the receivers).” *SPTF Report* at 31. The over-the-air television industry presents precisely this type of industry dynamic in which the service providers (*i.e.*, broadcasters) do not control the production of receivers.<sup>19</sup> Given that broadcasters do not control the production of receivers and those entities who do produce receivers have demonstrated little interest in devoting resources to improving over-the-air reception, the Commission should adopt the four performance standards discussed above as “mandatory” standards. Absent these mandated standards, it is likely that manufacturers will continue to produce nothing but poorly performing over-the-air DTV receivers that fail to meet consumer expectations while focusing on the easier cable and satellite paradigms, thus further complicating and delaying the DTV transition.

Although they are not likely to be as effective as mandatory standards, voluntary standards promulgated by the Commission may be an acceptable alternative if they are accompanied by a meaningful labeling regime.<sup>20</sup> At a minimum, the Commission should adopt the four performance standards discussed above in any voluntary regime. If a receiver complies with these standards, it would be labeled to indicate that it meets the Commission’s performance criteria. The Commission would establish a program to ensure that receivers labeled as

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<sup>19</sup>*SPTF Report* at 45 (“broadcaster’s relative lack of control over receiver equipment affects the rapidity with which technological advances can be introduced into the marketplace and assimilated by consumers – a factor that has complicated the DTV transition”).

<sup>20</sup>Sinclair notes that the Commission is currently seeking comment on a Memorandum of Understanding (“MOU”) between representatives of the cable industries and consumer electronics industries regarding a cable “plug and play” standard that will allow consumers to attach their DTV receivers to cable systems without the need for a cable set-top box. See *Implementation of Section 304 of the Telecommunications Act of 1996, Further Notice of Proposed Rulemaking*, CS Docket No. 97-80, PP Docket No. 00-67, FCC 03-3 (Jan. 10, 2003). The MOU contemplates that the Commission will adopt a rule that permits a unidirectional digital cable television receiver to be labeled and marketed as “digital cable compatible” only if the receiver satisfies certain criteria. Having agreed to a labeling regime in the MOU regarding digital cable compatibility, consumer electronics manufacturers should have no objection to a similar labeling regime for over-the-air DTV reception.

compliant with Commission standards actually meet those standards. If a receiver does not comply with these standards, it should be clearly labeled with the following information: (i) the receiver fails the Commission's performance criteria; (ii) over-the-air reception with the receiver may not be possible using a simple antenna; (iii) information as to the cost and type of outdoor antenna that must be purchased and installed to have any potential of receiving over-the-air DTV signals; and (iv) a contact number at the Commission where consumers can lodge complaints if over-the-air reception does not meet the consumer's expectations. With such a labeling regime, consumers will at least know whether an over-the-air receiver has the same reception capabilities as their current analog receivers.

The voluntary standards regime proposed by the Commission in the *NOI* is not a viable alternative. *NOI* at ¶ 36. Under this regime, broadcasters, equipment manufacturers, and other interested parties would jointly develop voluntary performance standards. *Id.* Over-the-air DTV receivers that meet these specifications would be labeled to indicate their compliance with these "industry accepted" standards. *Id.* Sinclair notes that similar inter-industry standards setting groups have already been working to develop over-the-air DTV performance standards, but have failed. The fatal flaw in the Commission's proposal as with current standards setting groups is the lack of Commission oversight in developing the voluntary performance standards. For example, Sinclair notes that the Advanced Television Systems Committee, Inc. ("ATSC") announced in late June that it is developing voluntary guidelines for over-the-air DTV receiver performance.<sup>21</sup> The Commission should not be misled to believe that the ATSC's efforts will result in better performing over-the-air DTV receivers. As an initial matter, Sinclair notes that

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<sup>21</sup> See ATSC Press Release, "ATSC to Develop Recommended Practice for DTV Receivers" (June 30, 2003) (available at [http://www.atsc.org/news\\_information/press/2003/PR\\_Receiver%20RP.htm](http://www.atsc.org/news_information/press/2003/PR_Receiver%20RP.htm)).

the ATSC is dominated by equipment manufacturers and thus relying on ATSC to promulgate voluntary standards for over-the-air DTV receivers is like allowing the fox to guard the hen house. Moreover, in order for a voluntary standards regime such as that proposed by ATSC to have any impact, the Commission must play a central role and must establish a stringent timeline for adoption of voluntary standards. Electronics manufacturers are unlikely to agree to meaningful voluntary performance standards in an inter-industry group such as ATSC without the Commission playing an active role. Only the Commission can ensure that the interests of American television viewers, rather than solely the economic interests of electronics manufacturers, are adequately represented in the voluntary standards setting process. In addition, the presence of the Commission serves as a useful reminder to manufacturers that Commission-imposed mandatory standards are the only alternative to meaningful industry-backed voluntary standards.

Another flaw in the Commission's proposal is the failure to address how receivers would be labeled if they fail to meet the "industry accepted" standards. As discussed above, if a receiver does not meet the voluntary standards, it should be clearly labeled to indicate that over-the-air reception is not possible using a simple antenna and should provide information as to the cost and type of outdoor antenna that must be purchased and installed to have any potential of receiving over-the-air DTV signals.

#### **IV. PERFORMANCE STANDARDS FOR OVER-THE-AIR DTV RECEIVERS WILL REDUCE THE COST OF RECEIVERS**

In the *NOI*, the Commission asks what impact receiver standards will have on the cost of over-the-air DTV receivers. *NOI* at ¶ 37. Sinclair believes that performance standards will lead to lower cost receivers. Once over-the-air DTV receivers are capable of providing the same ease of reception that is currently available with analog television, demand for DTV receivers will

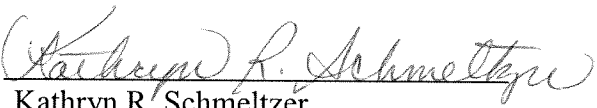
surge. Consumers will readily replace their legacy analog receivers with DTV receivers that are capable of providing vastly improved picture quality and new features, provided these receivers can operate using simple antennas just like current analog receivers. As with other consumer electronics, as production of over-the-air DTV receivers increases to meet demand, the per unit cost will decrease rapidly as economies of scale and production efficiencies are achieved.

### **Conclusion**

For the reasons discussed above, Sinclair urges the Commission to expeditiously adopt minimum performance standards for over-the-air DTV receivers in order to preserve a free and ubiquitous over-the-air television service and to expedite the DTV transition.

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Dated: July 21, 2003

## CERTIFICATE OF SERVICE

I, Sylvia A. Davis, a secretary with the law firm of Shaw Pittman LLP, hereby certify that on this 21st day of July 2003, served a true copy of the foregoing "COMMENTS" by hand delivery upon the following:

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